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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Application Number: 10/684,865
Filing Date: October 14, 2003
Appellant(s): HAMZA ET AL.

David D'Zurilla (Reg. No. 36,776)
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 12/23/2009 appealing from the Office action mailed 10/27/2009.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

WITHDRAWN REJECTIONS

The following grounds of rejection are not presented for review on appeal because they have been withdrawn by the examiner.

The rejection of claims 1-30 under 35 U.S.C. § 112, fist paragraph has been withdrawn.

The rejection of claims 1 and 16 and the respective dependent claims under 35 U.S.C. § 101 has been withdrawn.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

20030025599	Monroe
20030107649A1	Flickner
5874988	Gu
20030122942 A1	Parker

Pavlidis, I. "Urban Surveillance System: From the Laboratory to the Commercial World", IEEE, VOL. 89. NO. 10, October 2001, pg. 1478-1488.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

2.   The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

    1.   Determining the scope and contents of the prior art.
    2.   Ascertaining the differences between the prior art and the claims at issue.
    3.   Resolving the level of ordinary skill in the pertinent art.
    4.   Considering objective evidence present in the application indicating
            obviousness or nonobviousness.

3.   Claims 1-26, and 28-30 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Pavlidis et al., Urban Surveillance Systems 2001 in view of Monroe

et al., US-2003/0025599 in view of Flickner et al., US-2003/0107649A1 and further in

view of Gu et al., US-5, 874, 988 view of Parker et al., US-2003/0122942 A1.

        Regarding **claim 1**, Pavlidis discloses a method of detecting motion in an area

the method comprising: receiving <u>at one or more processors</u> frames of the area

(Pavlidis, DETER, *Introduction* pg. 1478 and Fig. 3 and 4); using a high performance

motion detection algorithm <u>executing in the one or more processors</u> on remaining

frames to detect true motion from noise (Pavlidis, the connected component algorithm

filters out blobs with area less than 27 pixels as noise, *C. Multiple Hypotheses*

Predictive Tracking pg. 1448 and Section V). Pavlidis is silent in regards to using a high-

speed motion detection algorithm to remove frames in which a threshold amount of
motion is not detected; wherein a plurality of the frames comprises a selected portion of
a frame with a first pixel color distribution associated with a first block of pixels that
does not represent any motion of interest; and wherein the high speed motion detection
algorithm is configured such that the first color pixel distribution is pre-selected, prior to
the receiving the frames of the area, as a function of the block of pixels that does not
represent any motion of interest; wherein the plurality of the frames comprises a
selected portion of a frame with the first pixel color distribution associated with the first
block of pixels and another portion of the frame with a second pixel color distribution
associated with a second block of pixels. However, Monroe discloses a high-speed
motion detection algorithm to remove frames in which a threshold amount of motion is
not detected (only changes in the data need be transmitted; see page 4, paragraph
[0032], [0033]).

Therefore it would have been obvious to one of ordinary skill in the art at the time
of the invention to combine the method of Pavlidis with the teaching of Monroe for
providing computational efficiency and minimizing the amount of data to be transmitted
without any loss of critical change data (Monroe, [0054]).

Pavlidis (modified by Monroe) as a whole is silent in regards to wherein a
wherein the high speed motion detection algorithm represents the frames, wherein a
plurality of the frames comprises a selected portion of a frame with a first pixel color
distribution that does not represent any motion of interest; wherein the plurality of the

frames comprises a selected portion of a frame with the first pixel color distribution and another portion of the frame with a second pixel color distribution.

However, Flickner teaches wherein a plurality of the frames comprises a selected portion of a frame with a first pixel color distribution associated with a first block of pixels that does not represent any motion of interest (Flickner teaches in the first stage, a temporal median filter is applied to several seconds of video (typically 20-40 seconds) to distinguish "moving pixels" (pixels corresponding to moving objects) from "stationary pixels" (pixels corresponding to stationary objects) by monitoring color and assuming that a color that predominates at a given pixel over time is representative of the background image, since any object corresponding to a foreground image is expected to move in and out of the camera's view over time [0025]. Since Flickner discloses to determine moving pixel from stationary pixels by monitoring color and to predominate at a given time to be considered background, it is clear to the examiner that Flickner teaches to have a portion of the frame that is stationary represented with a color distribution associated with a lack of motion as a condition, which reads upon the claimed limitation); a function of the block of pixels that does not represent any motion of interest wherein the plurality of the frames comprises a selected portion of a frame with the first pixel color distribution and another portion of the frame with a second pixel color distribution (Flickner teaches in the first stage, a temporal median filter is applied to several seconds of video (typically 20-40 seconds) to distinguish "moving pixels" (pixels corresponding to moving objects) from "stationary pixels" (pixels corresponding to stationary objects) by monitoring color and assuming that a color that predominates

at a given pixel over time is representative of the background image, since any object corresponding to a foreground image is expected to move in and out of the camera's view over time [0025]. Further disclosed is that shopping carts themselves (and moving inanimate objects generally) may be detected using color (step 140). The color of shopping carts may be modeled using a single 3-D Gaussian distribution, with the pixel of any foreground silhouette pixel that has a color similar to that distribution being classified as a pixel belonging to a shopping cart, [0032]. Since Flickner discloses to determine moving pixel from stationary pixels by monitoring color and to predominate at a given time to be considered background, it is clear to the examiner that Flickner teaches to have a portion of the frame that is stationary represented with a color distribution, and distinguish objects using a 3-D Gaussian distribution, with the pixel of any foreground silhouette pixel that a color similar to distribution, it is clear to the examiner that Flickner discloses to represent foreground and background pixel in different color distributions associated with the presence of motion of the lack of motion as a condition, which reads upon the claimed invention).

Therefore, it would have been obvious to one of ordinary skill in the art at the invention to incorporate the teachings of Flickner with Pavlidis (modified by Monroe) for allowing for more efficient tracking of persons and activities [0004].

Pavlidis (modified by Monroe and Flickner) is silent in regards to the first color pixel distribution is pre-selected.

However, Gu teaches the pixel distributions are pre-selected (column 4 lines 11-16).

　　　Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Gu with Pavlidis (modified by Monroe and Flickner) for providing efficient signal processing of color images.

　　　Pavlidis (modified by Monroe, Flicker and Gu) is silent in regards to the color pixel distribution is pre-selected, prior to the receiving the frame of the area.

　　　However, Parker discloses where in the present invention, the skin detection algorithm utilizes color image segmentation and a pre-determined skin distribution in a specific color space, as: P (skin.vertline.chrominace) [0045]. Therefore, since Parker discloses a predetermined skin distribution in a specific color space, it is clear to the examiner that the predetermined specific color space is prior to an image, which reads upon the claimed limitation.

　　　Now taking the teachings of Pavlidis (modified by Monroe, Flicker, and Gu) now incorporating Parkers teaching of predetermined color space prior to image, now teaches claim 1.

　　　Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Parker with Pavlidis (modified by Monroe, Flickner, and Gu) for providing improved image processing.

　　　Regarding **claim 2**, Pavlidis (modified by Flickner, Gu and Parker) is silent in regards to the high-speed detection algorithm operates in a compressed image domain. However, Monroe teaches the high-speed detection algorithm operates in a compressed image domain (Monroe, [compressed digital images; page 4, paragraph [0028]).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Pavlidis (modified with Flickner ,Gu, Parker) with the teaching of Monroe for providing computational efficiency and minimizing the amount of data to be transmitted without any loss of critical change data (Monroe, [0054]).

Regarding **claim 3**, Pavlidis (modified by Flickner, Gu, and Parker) is silent in regards to the high speed detection algorithm operates in an uncompressed image domain.

However, Monroe teaches the high speed detection algorithm operates in an uncompressed image domain (Monroe, optionally compressed; page 16, paragraph [0212]) image domain.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Pavlidis (modified by Flickner,Gu, and Parker) with the teaching of Monroe for providing computational efficiency and minimizing the amount of data to be transmitted without any loss of critical change data (Monroe, [0054]).

Regarding **claim 4** Pavlidis (modified by Flickner, Gu, and Parker) as a whole further teach the high performance detection algorithm operates in an image pixel domain (Pavlidis, motion segmentation through a multi-normal representation at the pixel level, pg 1482, first column).

Regarding **claim 5**, Pavlidis (modified by Monroe, Flickner, Gu, Parker) as a whole further teach the high speed motion detection algorithm represents portions of images in grey scale pixels (Pavlidis, *V. Optical and System Design,* pg 1482).

Regarding **claim 6**, Pavlidis (modified by Monroe, Flickner, Gu, Parker) as a whole further teach the image are represented in grey scale when such portions are not high in color content (Pavlidis, *V. Optical and System Design,* pg 1482).

Regarding **claim 7**, Pavlidis (modified by Flickner, Gu, and Parker) as a whole further teach the selected portions of the images are low in color content (Pavlidis discloses the use of a dual channel camera system that uses a medium resolution color camera during the day, and a high resolution grey scale camera during the night, V. *Optical and System Design,* page 1482. Monroe discloses the ability to select areas of a selected scene for monitoring activity level paragraph [0044]).

Regarding **claim 8**, Pavlidis (modified by Flickner, Gu, and Parker) as a whole further teach the portions are based on an initial set up (Pavlidis. VI. Object Segmentation and Tracking, *Initialization*, pg. 1484, Monroe discloses defaulting and programmable modes; page 4, paragraph [0028]).

Regarding **claim 9**, Pavlidis (modified by Flickner, Gu, and Parker) is silent in regards to wherein the selected portions are determined based on a real time assessment of dynamic change in the area. However, Monroe teaches wherein the selected portions are determined based on a real time assessment of dynamic change in the area (Monroe, [0045]).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Pavlidis (modified by Flickner ,Gu, and Parker) with the teaching of Monroe for providing computational efficiency and minimizing the amount of data to be transmitted without any loss of critical change data (Monroe, [0054]).

Regarding **claim 10**, Pavlidis (modified by Flickner, Gu, and Parker)) is silent in regards to the threshold is predetermined. However, Monroe teaches wherein the threshold is predetermined (defined threshold would be indicative of motion; page 8 paragraph [0115]).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Pavlidis (modified by Flickner , Gu, and Parker) with the teaching of Monroe for providing computational efficiency and minimizing the amount of data to be transmitted without any loss of critical change data (Monroe, [0054]).

Regarding **claim 11**, Pavlidis (modified by Flickner, Gu, and Parker) is silent in regards to the area is a predetermined area. However, Monroe discloses the area is a predetermined area (remote; page 8 paragraph [0108]) area.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Pavlidis (modified by Flickner , Gu, and Parker) with the teaching of Monroe for providing computational efficiency and minimizing the amount of data to be transmitted without any loss of critical change data (Monroe, [0054]).

Regarding **claim 12**, Pavlidis (modified by Flickner, Gu, and Parker) as a whole further teach the frames comprise pixels, and where such pixels are group in blocks of pixel, each block being represented as an average or median in the color domain (Pavlidis, pg 1485, first column).

Regarding **claim 13**, Pavlidis (modified by Flickner, Gu, and Parker) is silent in regards to the blocks of pixels are of different sizes. However, Monroe teaches wherein the blocks of pixels are of different sizes (decimation various numbers of pixels will effectively change the sizes of pixel blocks; page 9 paragraph [0118]).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Pavlidis (modified by Flickner and Gu) with the teaching of Monroe for providing computational efficiency and minimizing the amount of data to be transmitted without any loss of critical change data (Monroe, [0054]).

Regarding **claim 14**, Pavlidis (modified by Flickner, Gu, and Parker) is silent in regards to the area requiring higher resolution to detect motion are represented by blocks of smaller number of pixels. However, Monroe teaches wherein portions of the area requiring resolution to detect motion are represented by blocks of smaller number of pixels (page 9, paragraph [0116] and fig. 2:21-24) Monroe discloses using the histogram to determine the degree of change, where pixels are grouped according the value of change.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Pavlidis (modified by Flickner, Gu, and

Parker) with the teaching of Monroe for providing computational efficiency and

minimizing the amount of data to be transmitted without any loss of critical change data

(Monroe, [0054]).

Regarding **claim 15**, Pavlidis (modified by Flickner, Gu, and Parker) is silent in

regards to the number of pixels in the blocks is varied based on depth of field. However,

Monroe teaches wherein the number of pixels in the block is varied based on depth of

field (the degree of motion; page 9, paragraph [0121] and see fig. 3: 34).

Therefore it would have been obvious to one of ordinary skill in the art at the time

of the invention to combine the method of Pavlidis (modified by Flickner, Gu, and

Parker) with the teaching of Monroe for providing computational efficiency and

minimizing the amount of data to be transmitted without any loss of critical change data

(Monroe, [0054]).

Regarding **claim 16**, Pavlidis teach a method of detecting motion in an area

(DETER, a prototype urban surveillance system, *Introduction*, pg 1478), the method

comprising: receiving <u>at one or more processors</u> frames of the area (DETER,

Introduction pg. 1478 and Fig. 3 and 4); using a high speed motion detection algorithm

to remove frames in which a threshold of motion is not detected; using a high

performance motion detection algorithm <u>executing in the one or more</u> on remaining

frames to detect true motion from noise (Pavlidis, the connected component algorithm

filters out blobs with area less than 27 pixel as noise VI. *C. Multiple Hypothesis

Predictive Tracking,* pg. 1488), wherein the frames comprise pixel (motion segmentation

though a multi-normal representation at the pixel level, pg 1482), and where such pixels

are grouped in blocks of pixels, each block being represented as a single average pixel

(Jeffery's divergence measures pg 1485-1487); and initializing, using the one or

processors, a model of the area comprising multiple weighted distributions for each

block of pixels (mixture of Normals; Pavlidis, *III.* Relevant Technical Work, page 1481

and VI. Object Segmentation and Tracking: *A. Initializing*, page 1485-1487).   Pavlidis is

silent in regards to using a high-speed motion detection algorithm to remove frames in

which a threshold amount of motion is not detected; wherein a plurality of the frames

comprises a selected portion of a frame with a first pixel color distribution associated

with a first block of pixels that does not represent any motion of interest; and wherein

the high speed motion detection algorithm is configured such that the first color pixel

distribution is pre-selected, prior to the receiving the frames of the area, as a function of

the block of pixels that does not represent any motion of interest; wherein the plurality of

the frames comprises a selected portion of a frame with the first pixel color distribution

associated with the first block of pixels; and wherein the high performance motion

detection algorithm operates on the frames, wherein the plurality of the frames

comprises a selected portion of a frame with the first pixel color distribution associated

with the first block of pixels and another portion of the frame with a second pixel color

distribution associated with a second block of pixels; and initializing a model of the area

comprising multiple weighted distributions for each block of pixels.

However, Monroe discloses using a high speed motion detection algorithm to

remove frames in which a threshold of motion is not detected (see page 4, paragraph

[0032], [0033]). Therefore it would have been obvious to one of ordinary skill in the art

at the time of the invention to combine the method of Pavlidis with the teaching of

Monroe for providing computational efficiency and minimizing the amount of data to be

transmitted without any loss of critical change data (Monroe, [0054]).

Pavlidis (modified by Monroe) as a whole is silent in regards to wherein a

plurality of the frames comprises a selected portion of a frame with a first pixel color

distribution that does not represent any motion of interest; wherein the plurality of the

frames comprises a selected portion of a frame with the first pixel color distribution and

wherein the high performance motion detection algorithm operates on the frames,

wherein the plurality of the frames comprises a selected portion of a frame with the first

pixel color distribution associated with the first block of pixels and another portion of the

frame with a second pixel color distribution associated with a second block of pixels;

and initializing a model of the area comprising multiple weighted distributions for each

block of pixels.

However, Flickner teaches wherein a plurality of the frames comprises a selected

portion of a frame with a first pixel color distribution associated with a first block of pixels

that does not represent any motion of interest (Flickner teaches in the first stage, a

temporal median filter is applied to several seconds of video (typically 20-40 seconds) to

distinguish "moving pixels" (pixels corresponding to moving objects) from "stationary

pixels" (pixels corresponding to stationary objects) by monitoring color and assuming

that a color that predominates at a given pixel over time is representative of the

background image, since any object corresponding to a foreground image is expected

to move in and out of the camera's view over time [0025]. Since Flickner discloses to

determine moving pixel from stationary pixels by monitoring color and to predominate at

a given time to be considered background, it is clear to the examiner that Flickner

teaches to have a portion of the frame that is stationary represented with a color

distribution associated with a lack of motion as a condition, which reads upon the

claimed limitation); a function of the block of pixels that does not represent any motion

of interest wherein the high performance motion detection algorithm operates on the

frames, wherein the plurality of the frames comprises a selected portion of a frame with

the first pixel color distribution associated with the first block of pixels and another

portion of the frame with a second pixel color distribution associated with a second

block of pixels (Flickner teaches in the first stage, a temporal median filter is applied to

several seconds of video (typically 20-40 seconds) to distinguish "moving pixels" (pixels

corresponding to moving objects) from "stationary pixels" (pixels corresponding to

stationary objects) by monitoring color and assuming that a color that predominates at a

given pixel over time is representative of the background image, since any object

corresponding to a foreground image is expected to move in and out of the camera's

view over time [0025]. Further disclosed is that shopping carts themselves (and moving

inanimate objects generally) may be detected using color (step 140). The color of

shopping carts may be modeled using a single 3-D Gaussian distribution, with the pixel

of any foreground silhouette pixel that has a color similar to that distribution being

classified as a pixel belonging to a shopping cart, [0032]. Since Flickner discloses to

determine moving pixel from stationary pixels by monitoring color and to predominate at

a given time to be considered background, it is clear to the examiner that Flickner

teaches to have a portion of the frame that is stationary represented with a color

distribution, and distinguish objects using a 3-D Gaussian distribution, with the pixel of

any foreground silhouette pixel that a color similar to distribution, it is clear to the

examiner that Flickner discloses to represent foreground and background pixel in

different color distributions associated with the presence of motion of the lack of motion

as a condition, which reads upon the claimed invention).

Therefore, it would have been obvious to one of ordinary skill in the art at the

invention to incorporate the teachings of Flickner with Pavlidis (modified by Monroe) for

allowing for more efficient tracking of persons and activities [0004].

Pavlidis (modified by Monroe and Flickner) is silent in regards to the first color

pixel distribution is pre-selected.

However, Gu teaches the pixel distributions are pre-selected (column 4 lines 11-

16).

Therefore, it would have been obvious to one of ordinary skill in the art at the

time of the invention to incorporate the teachings of Gu with Pavlidis (modified by

Monroe and Flickner) for providing efficient signal processing of color images.

Pavlidis (modified by Monroe, Flicker and Gu) is silent in regards to the color

pixel distribution is pre-selected, prior to the receiving the frame of the area.

However, Parker discloses where in the present invention, the skin detection

algorithm utilizes color image segmentation and a pre-determined skin distribution in a

specific color space, as: P (skin.vertline.chrominace). Therefore, since Parker discloses

a predetermined skin distribution in a specific color space, it is clear to the examiner that

the predetermined specific color space is prior to an image, which reads upon the claimed limitation.

Now taking the teachings of Pavlidis (modified by Monroe, Flicker, and Gu) now incorporating Parkers teaching of predetermined color space prior to image, now teaches claim 1.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Parker with Pavlidis (modified by Monroe, Flickner, and Gu) for providing improved image processing.

Regarding **claim 17**, Pavlidis (modified by Flickner, Gu, and Parker) is silent in regards to the frames comprise blocks of pixels, and wherein a number of weighted distributions per block is varied. However, Monroe discloses wherein the frames comprise blocks of pixels, and wherein a number of weighted distributions per block are varied (Monroe, continuous variable; page 9, paragraph [0121]).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Pavlidis (modified by Flickner and Gu) with the teaching of Monroe for providing computational efficiency and minimizing the amount of data to be transmitted without any loss of critical change data (Monroe, [0054]).

Regarding **claim 18**, Pavlidis (modified by Monroe, Flickner, Gu and Parker), further teaches the number of weighted distributions varies (Monroe, continuous variable; page 9, paragraph [0121]) between 1 and 5 (Pavlidis, see VI. Object Segmentation and Tracking, page 1485).

Regarding **claim 19**, (modified by Monroe, Flickner, Gu and Parker), as a whole
further teach the number of weighted distributions is varied based on dynamics of
motions or expectations (Pavlidis, VI. Object Segmentation and Tracking, *Model Update
When a Match is Found*, pg. 1486-1487).

Regarding **claim 20**, (modified by Monroe, Flickner, Gu and Parker),), as a whole
further teach the model is based on N successive frames and the weight is based on a
count (Pavlidis, VI. Object segmentation and Tracking, *A. Initialization page* 1484-1485)

Regarding **claim 21**, see analysis and rejection of claim 16. Furthermore, a
predefined number of weighted distributions are selected for each block of pixels, and
wherein the weights are normalized as claimed are discussed in the combined teaching
of Monroe and Pavlidis (mixture of Normals; Pavlidis, *III.* Relevant Technical Work,
page 1481 and VI. Object Segmentation and Tracking: *A. Initializing*, page 1485).

Regarding **claim 22**, Pavlidis (modified by Flickner, Gu, and Parker), as a whole
further teach if pixels in a new frame match the model, the model weights and
distributions are updated (Pavlidis, VI. Object Segmentation and Tracking: *A. Initializing*,
page 1485).

Regarding **claim 23**, Pavlidis (modified by Flickner, Gu, and Parker), as a whole
further teach a (modified Jeffery's measure) is used to determine a match or non-match
in the distributions (Pavlidis; VI. Object Segmentation and Tracking, *B Segmentation of
Moving Objects*: The Matching Operation, page 1486).

Regarding **claim 24**, Pavlidis (modified by Flickner, Gu, and Parker), as a whole
further teach a predetermined number of frames have pixels or blocks that do not match

the model, the lowest weighted distributions of the pixels or blocks of a background are

removed from the model and replaced by ones derived from a foreground distribution

once a derived number of sequences is reached within the last N successive frames

(Pavlidis, VI. Object Segmentation and Tracking *B. Segmentation of Moving Objects:*

Model Update When a Match is Not Found; page 1487).

 Regarding **claim 25**, Pavlidis (modified by Flickner, Gu, and Parker), is silent in

regards to the high speed motion detection algorithm operates in a compressed image

domain.

 However, Monroe teaches wherein the high speed motion detection algorithm

operates in a compressed image domain (see Monroe, page 4, paragraph [0029]).

 Therefore it would have been obvious to one of ordinary skill in the art at the time

of the invention to combine the method of Pavlidis (modified by Flickner ,Gu, and

Parker) with the teaching of Monroe for providing computational efficiency and

minimizing the amount of data to be transmitted without any loss of critical change data

(Monroe, [0054]).

 Regarding **claim 26**, Pavlidis (modified by Flickner, Gu, and Parker), is silent in

regards to the high speed motion detection algorithm operates in an uncompressed

image domain.

 However, Monroe teaches wherein the high speed motion detection algorithm

operates in an uncompressed image domain (in Monroe, the calculation of the

difference between two images is tabulated uncompressed or compressed, see page 4,

paragraph [0032], also page 16, paragraph 0212, optionally compressed).

Therefore it would have been obvious to one of ordinary skill in the art at the time

of the invention to combine the method of Pavlidis (modified by Flickner, Gu, and

Parker) with the teaching of Monroe for providing computational efficiency and

minimizing the amount of data to be transmitted without any loss of critical change data

(Monroe, [0054]).

Regarding **claim 28**, Pavlidis (modified by Flickner, Gu, and Parker), are silent in

regards to wherein the first color pixel distribution is pre- selected by an operator.

However, Gu teaches the first color pixel distribution is pre-selected by an

operator (fig. 1).

Therefore, it would have been obvious to one of ordinary skill in the art at the

time of the invention to incorporate the teachings of Gu with Pavlidis (modified by

Monroe, Flickner and Parker) for providing efficient signal processing of color images.

Regarding **claim 29**, Pavlidis (modified by Monroe, Flickner, Gu and Parker) is

silent in regard to The method of claim 1, wherein the first color pixel distribution is pre-

selected by an automated image contextual classifier.

However, Flickner teaches to distinguish "moving pixels" (pixels corresponding to

moving objects) from "stationary pixels" (pixels corresponding to stationary objects) by

monitoring color and assuming that a color that predominates at a given pixel over time

is representative of the background image, since any object corresponding to a

foreground image is expected to move in and out of the camera's view over time [0025].

Since Flickner discloses to determine moving pixel from stationary pixels by monitoring

color and to predominate at a given time to be considered background, it is clear to the

examiner that Flickner teaches to have a portion of the frame that is stationary

represented with a color distribution associated with a lack of motion as a condition,

which reads upon the claimed limitation);

Therefore, it would have been obvious to one of ordinary skill in the art at the

time of the invention to incorporate the teachings of Flickner with Pavlidis (modified by

Monroe for allowing for more efficient tracking of persons and activities [0004].

Pavlidis (modified by Monroe and Flickner) is silent in regards to pre-select the

color distributions.

However Gu teaches to pre-select the color distributions (column 4 line 11-16).

Therefore, it would have been obvious to one of ordinary skill in the art at the

time of the invention to incorporate the teachings of Gu with Pavlidis (modified by

Monroe and Flickner) for providing efficient signal processing of color images.

Regarding **claim 30,** Pavlidis (modified by Monroe, Flickner, Gu, and Parker) is

silent in regards to The method of claim 1, comprising analyzing the frame as a function

of a resolution of a region of interest in the frame.

However, Flickner teaches analyzing the frame as a function of a resolution of a

region of interest in the frame ([0025])

Therefore, it would have been obvious to one of ordinary skill in the art at the

invention to incorporate the teachings of Flickner with Pavlidis (modified by Monroe and

Gu) for allowing for more efficient tracking of persons and activities [0004].

Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Monroe

et al., US-2003/0025599 in view of Pavlidis et al.: Urban Surveillance Systems, 2001 in

view of Flickner et al., US-2003/0107649 A1 and in further view of Gu et al., US-5,

874,988 and further in view of Parker et al., US-2003/0122942 A1.

Regarding **claim 27,** Monroe teaches A system for detecting motion in a

monitored area, the system comprising: means for receiving video images of the

monitored area; a fast video motion segmentation (VMS) module that rejects still

images that do not portray any motion (motion of the fan is not detected as motion, and

does not cause unnecessary transmission and storage of still image data, page 9 [0121,

and; a robust VMS module that detects motion of an object in the monitored area

(remote area; page 3 [0026]); and a resource management controller that initializes ,

controls, and adapts the fast and robust VMS modules; wherein the robust VMS module

(adaptive; page 9 [0123 and page 10 [0124. Monroe discloses that the system is

adaptive, thus necessitates a controller to initialize control, and adapt the system for

motion detection). Monroe is silent in regards to wherein a plurality of the frames

comprises a selected portion of a frame with a first pixel color distribution associated

with a first block of pixels that does not represent any motion of interest, and wherein

the high speed motion detection algorithm is configured such that the first color pixel

distribution is pre-selected, prior to the receiving video images of the monitored area, as

a function of the block of pixels that does not represent any motion of interest, ;and

wherein the plurality of the frames comprises a selected portion of a frame with the first

pixel color distribution associated with the first block of pixels and another portion of the

frame with a second pixel color distribution associated with a second block of pixels.

However, However, Flickner teaches wherein a plurality of the frames comprises a selected portion of a frame with a first pixel color distribution associated with a first block of pixels that does not represent any motion of interest (Flickner teaches in the first stage, a temporal median filter is applied to several seconds of video (typically 20-40 seconds) to distinguish "moving pixels" (pixels corresponding to moving objects) from "stationary pixels" (pixels corresponding to stationary objects) by monitoring color and assuming that a color that predominates at a given pixel over time is representative of the background image, since any object corresponding to a foreground image is expected to move in and out of the camera's view over time [0025]. Since Flickner discloses to determine moving pixel from stationary pixels by monitoring color and to predominate at a given time to be considered background, it is clear to the examiner that Flickner teaches to have a portion of the frame that is stationary represented with a color distribution associated with a lack of motion as a condition, which reads upon the claimed limitation); a function of the block of pixels that does not represent any motion of interest wherein the plurality of the frames comprises a selected portion of a frame with the first pixel color distribution and another portion of the frame with a second pixel color distribution (Flickner teaches in the first stage, a temporal median filter is applied to several seconds of video (typically 20-40 seconds) to distinguish "moving pixels" (pixels corresponding to moving objects) from "stationary pixels" (pixels corresponding to stationary objects) by monitoring color and assuming that a color that predominates at a given pixel over time is representative of the background image, since any object corresponding to a foreground image is expected to move in and out of the camera's

view over time [0025]. Further disclosed is that shopping carts themselves (and moving inanimate objects generally) may be detected using color (step 140). The color of shopping carts may be modeled using a single 3-D Gaussian distribution, with the pixel of any foreground silhouette pixel that has a color similar to that distribution being classified as a pixel belonging to a shopping cart, [0032]. Since Flickner discloses to determine moving pixel from stationary pixels by monitoring color and to predominate at a given time to be considered background, it is clear to the examiner that Flickner teaches to have a portion of the frame that is stationary represented with a color distribution, and distinguish objects using a 3-D Gaussian distribution, with the pixel of any foreground silhouette pixel that a color similar to distribution, it is clear to the examiner that Flickner discloses to represent foreground and background pixel in different color distributions associated with the presence of motion of the lack of motion as a condition, which reads upon the claimed invention).

Therefore, it would have been obvious to one of ordinary skill in the art at the invention to incorporate the teachings of Flickner with Monroe for allowing for more efficient tracking of persons and activities [0004].

Monroe (modified by Flickner) is silent in regards to the first color pixel distribution is pre-selected.

However, Gu teaches the pixel distributions are pre-selected (column 4 lines 11-16).

Therefore, it would have been obvious to one of ordinary skill in the art at the

time of the invention to incorporate the teachings of Gu with Monroe (modified by

Flickner) for providing efficient signal processing of color images.

Pavlidis (modified by Monroe, Flicker and Gu) is silent in regards to the color

pixel distribution is pre-selected, prior to the receiving the frame of the area.

However, Parker discloses where in the present invention, the skin detection

algorithm utilizes color image segmentation and a pre-determined skin distribution in a

specific color space, as: P (skin.vertline.chrominace), [0045]. Therefore, since Parker

discloses a predetermined skin distribution in a specific color space, it is clear to the

examiner that the predetermined specific color space is prior to an image, which reads

upon the claimed limitation.

Now taking the teachings of Pavlidis (modified by Monroe, Flicker, and Gu) now

incorporating Parkers teaching of predetermined color space prior to image, now

teaches claim 1.

Therefore, it would have been obvious to one of ordinary skill in the art at the

time of the invention to incorporate the teachings of Parker with Pavlidis (modified by

Monroe, Flickner, and Gu) for providing improved image processing.

(10) Response to Argument

The Examiner's response to the arguments of he brief concerning the art

rejection of claim 1-30 are as follows:

Rejection of Claims 1-30 Under 35 U.S.C § 112, First Paragraph

The rejection of claims 1-30 under 35 U.S.C. § 112, fist paragraph has been withdrawn.

Rejection of Claims 1-30 Under 35 U.S.C. § 101

The 101 rejection of claims 1 and 16 and the respective dependent claims has been withdrawn.

As to Appellants argument that claim 27 does not recite a carrier wave. Paragraph ¶ [0021] states that the "term" 'computer readable media' is also used to represent carrier waves". However, claim 27 recites a system, not a computer readable medium. The Appellants therefore respectfully submit that claim 27 does not encompass carrier waves, and the Appellants respectfully seek the reversal of the rejection of claim 27 of the Appellants' specification.

The Examiner respectfully disagrees. Claim 27 which is directed to a system for detecting motion that comprises a means for receiving video images of the monitored area. Although, claim 27 recites the claim language, "means for receiving", which would include structure, however, the Examiner notes that there is no structure (device or apparatus) that performs the inventive steps as claimed. Further, the modules claimed for detecting motion; a fast video motion segmentation (VMS) module, a robust VMS module, and management controller are defined in the specification as "such functions correspond to modules, which are software, hardware, firmware or any combination of thereof, See paragraph 27. Since the modules which carry out the system as claimed encompasses both statutory and non-statutory subject matter, the Examiner has treated

claim 27 as being directed towards software. Thus, the Examiner maintains that the 101

for claim 27 is not improper.

<u>Rejection of Claims 1-30 under 35 U.S.C. § 103 (a)</u>

As to Appellant argument that it would have not been obvious to one of ordinary

skill in the art to incorporate the teaching of Gu with Pavlidis (as modified by Monroe

and Flickner), and further respectfully disagree that it would have been obvious to one

of skill in the art to incorporate the teaching of Parker with Pavlidis (as modified by

Monroe, Flickner, and Gu).

In response to applicant's argument that there is no suggestion to combine the

references, the examiner recognizes that obviousness can only be established by

combining or modifying the teachings of the prior art to produce the claimed invention

where there is some teaching, suggestion, or motivation to do so found either in the

references themselves or in the knowledge generally available to one of ordinary skill in

the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re*

Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it would have

been obvious to combine the teachings Gu with Pavlidis (as modified by Monroe and

Flickner) for providing improved efficient signal processing of color images. The

Examiner respectfully disagrees. Gu discloses where other aspects of the invention

involve methods for automated color correction carried out in the disclosed system.

Predetermined color parameter statistical data, e.g., the lower edge, upper edge, and

peak value of color distribution histograms for a plurality of selectable reference images,

are stored in a reference memory, see col. 4 line 11-16. Further, Gu is related to

processing of color image signals, and in particular, related to an improved system and

method for the automated correction of color video signals. It is particularly useful in

digital systems for color correction and modification, col. 1 line 1-9. Further disclosed is

color correction and modification is used in a number of applications within the

television industry and other businesses which make use of video and other graphic

image signals, col. 1 line 20-24. Further, Pavlidis discloses to use color cameras during

the day and a high-resolution camera during the night, see V Optical and System

Design, pg. 1482 to 1483 bridging paragraphs. Thus, it would have been obvious to one

of ordinary skill in the art to incorporate the teachings of Gu with Pavlidis for providing

improved efficient signal processing of color images.

Further, it would have been obvious to one of ordinary skill in the art at the time

of the invention to incorporate the teachings of Parker with Pavlidis (as modified by

Monroe, Flickner and Gu) for improving mage processing. Parker teaches the skin

detection algorithm utilizes color image segmentation and a pre-determined skin

distribution in a specific color space, as: P (skin.vertine.chrominance) [0045]. The

Examiner relied upon Parkers' teachings of the predetermined skin distribution in a

specific color space, to the technique of having a predetermined specific color space

prior to an image. Thus, it would have been obvious to one of ordinary skill in the art at

the time of the invention to incorporate the teachings of Park with Pavlidis (modified by

Monroe, Flickner and Gu) for providing improved image processing. Further, Parker is

related to digital image processing, and more particularly to processing digital images

and digital motion image sequences captured by high resolution digital cameras, [0001],

such as those as used in Pavlidis. Further, the reference discloses providing a method

for generating an enhanced digital compressed digital image, thus improving image

processing.

As to Appellants argument that predetermined statistics regarding histograms is

not a disclosure of a "pixel distribution [that] is preselected" in a motion detection

system recited in the claims. So not only does Gu not disclose the feature as contended

by the Final Office Action, but it would not have been obvious to incorporate Gu into

Pavlidis because there is no reason to incorporate a predetermination of color

parameter histogram data into surveillance system.

The Examiner respectfully disagrees. Gu discloses where color correction and

modification is used in a number of applications within the television industry and other

businesses which make use of video and other graph image signals. A principle use is

in film to tape transfers and postproduction processing of commercials to highlight

certain objects, colors, and the like. For example, when it is desired to emphasize a

particular object in the scene or image, wherein the object has a detectable hue that is

distinguishable from the hues of other objects in the scene (e.g. a spot color), the

occurrence of pixel elements ("pixels") containing this hue can be detected and the

saturation level can be increased. In conventional color correctors, this has the effect of

"highlighting" the particular object. For example, the hue distinctive to a red soft drink

can in an advertisement can be saturated so as to draw addition attention of the viewer

to the can, col. 1 line 20-36. Further, Gu discloses where other aspects of the invention

methods for automated color correction carried out in the disclosed system.

Predetermined color parameter statistical data, e.g. the lower edge, upper edge, and

peak values for color distribution histograms for a plurality of selectable reference

images, are stored in a reference image memory device, see col. 4 line 11-17. The

Examiner notes that a histogram represents a distribution. Since Gu discloses that

Predetermined color parameter statistical data, e.g. the lower edge, upper edge, and

peak values for color distribution histograms for a plurality of selectable reference

images, are stored in a reference image memory, and a histogram represents a

distribution, it is further clear to the Examiner that Gu discloses predetermined

(preselected) color parameters for the color distribution, which reads upon the claimed

limitation. Thus, the Examiner maintains that Gu discloses preselected color

distributions of pixel within an image.

Further, it would have been obvious to one of ordinary skill in the art at the time

of the invention to incorporate the predetermined pixel distribution of Gu with Pavlidis as

the histogram as disclosed by Gu because in video surveillance it is known to monitor

faces of people under watch, thus, it would further be obvious to incorporate to allow for

facial tracking using the skin color detection to identify facial features.

As to Appellants argument that a prima facie case of obviousness has not been

established, and respectfully request the reversal of the rejection of claims.

The Examiner respectfully disagrees. Gu is related to processing of color image

signals, and in particular, related to an improved system and method for the automated

correction of color video signals. It is particularly useful in digital systems for color

correction and modification, col. 1 line 1-9. Further disclosed is color correction and

modification is used in a number of applications within the television industry and other

businesses which make use of video and other graphic image signals, col. 1 line 20-24.

Further, Pavlidis discloses to use color cameras during the day and a high-resolution

camera during the night, see V Optical And System Design. Thus, it would have been

obvious to one of ordinary skill in the art to incorporate the teachings of Gu with Pavlidis

for providing improved efficient signal processing of color images.

As to Appellants argument that the cited portion of Parker ([¶0045]) relates to a

skin detection algorithm, and in particular, the manner in which a pre-determined skin

distribution color image segmentation can be used to determined if an image falls within

that distribution--- that is, if the image includes human skin. The Appellants respectfully

submit that it would not have been obvious to combine Parker with Pavlidis since one of

skill in the art would not have a reason to apply a skin color detection algorithm to a

system for motion detection. Moreover, the rational provided by the Office Action, that is

that the combination of Parker with Pavlidis would provide improved image processing,

is simply too general a rational to establish a prima facie case of obviousness.

The Examiner respectfully disagrees. In response to applicant's argument that

there is no suggestion to combine the references, the examiner recognizes that

obviousness can only be established by combining or modifying the teachings of the

prior art to produce the claimed invention where there is some teaching, suggestion, or

motivation to do so found either in the references themselves or in the knowledge

generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5

USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed.

Cir. 1992). In this case, Parker teaches the skin detection algorithm utilizes color image

segmentation and a pre-determined skin distribution in a specific color space, as: P

(skin.vertine.chrominance) [¶0045], lines 1-4. The Examiner relied upon Parkers

teachings of the predetermined skin distribution in a specific color space, to the

technique of having a predetermined specific color space prior to an image. Thus, it

would have been obvious to one of ordinary skill in the art at the time of the invention to

incorporate the teachings of Park with Pavlidis (modified by Monroe, Flickner and Gu)

for providing improved image processing. Further, Parker is related to digital image

processing, and more particularly to processing digital images and digital motion image

sequences captured by high resolution digital cameras, [0001]. Further, discloses is

providing a method for generating an enhanced digital compressed digital image, thus

improving image processing. Furthermore, it would have been obvious to one of

ordinary skill in the art to combine the predetermined color distribution histogram of

Parker with the surveillance system of Pavlidis to determine true motion by performing

color analysis to distinguish between actual movement and just a change in the

luminance which would only "appear" as motion. It should also be noted that in video

surveillance it is known to monitor faces of people under watch, thus, it would further be

obvious to incorporate Parker with Pavlidis for allow for facial tracking using the skin

color detection to identify facial features. Thus, it would have been obvious to one of

ordinary skill in the art at the time of the invention to incorporate the teachings of Parker

with Pavlidis for providing improved image processing.

As to Applicants argument that the Examiner is using the teachings of the Appellants' disclosure against the Appellants, that such use is improper, and that a *prima facie* caser of obviousness cannot be established based on the Appellants' disclosure.

The Examiner respectfully disagrees. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Jessica Roberts/

Examiner, Art Unit 2621

Conferees:

/Andy S. Rao/

Primary Examiner, Art Unit 2621

/Marsha D. Banks-Harold/

Supervisory Patent Examiner, Art Unit 2621